

CHAPTER TWELVE

Initial Logistics Support

Introduction

The weapon system acquisition phase begins with the modification of the weapon system itself and the ordering of all related logistics products and services needed to field the weapon system in-country. It includes the monitoring of procurement milestones and the tracking of deliveries in-country. This phase ends with the delivery of the weapon system to the foreign customer. Initial Support is an extension of the weapon system acquisition phase. It is the establishment of initial maintenance capability and materiel support.

The Department of Defense (DoD) does not have a separate logistics system to support foreign military requirements resulting from security assistance efforts. Rather, these requirements are satisfied by utilizing existing DoD logistics systems. Therefore, understanding how the basic DoD logistics system components fit together and function is a prerequisite to understanding the relatively minor system adaptations that have been made to accommodate security assistance requirements. Since many of the unique security assistance topics introduced herein are covered in considerable detail in subsequent chapters, the following discussion is presented basically as a DoD logistics system overview.

The Total Package Approach

The DoD policy is to offer the foreign military sales (FMS) purchaser a complete sustainability package when developing a Letter of Offer and Acceptance for non-excess systems. The Total Package Approach (TPA) ensures items can be operated and maintained in the future, and ensures that FMS purchasers can obtain support articles and services required to introduce and sustain equipment. In addition to the system itself, other items to consider in a total package include: training, technical assistance, initial support, ammunition, follow-on support, etc. The necessary planning for follow-on support, training, and other elements of continuity should accompany the transfer of end-items.

Logistics

Before discussing the function of DoD logistics, it is appropriate to examine what is generally meant by the term logistics. The DoD *Dictionary of Military and Associated Terms* (Joint Pub 1-02) defines logistics as: The science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, those aspects of military operations which deal with:

- Design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel;
- Movement, evacuation, and hospitalization of personnel;
- Acquisition or construction, maintenance, operation, and disposition of facilities; and
- Acquisition or furnishing of services.

Logistics is a full system, an integrated whole, which involves four elements – acquisition, distribution, sustainment, and disposition – which must be employed in part, at least, to perform six essential functions – transportation, supply, maintenance, civil engineering, health services, and other services – in support of the operational commander.

Thus, as a model for briefly examining the relationship between international logistics and the DoD logistics system, attention shall be focused on the functional areas of transportation, maintenance, and supply.

Transportation

Transportation involves the movement of equipment from point of origin to final destination. U.S. government policy is that foreign military sales (FMS) purchasers should be responsible for as much of the transportation process as possible past the Continental United States (CONUS) port of exit (POE). The DoD becomes involved as an exception in certain complex FMS transportation actions. To help accomplish these tasks, the procedures prescribed in DoD 4500.9-R, *Defense Transportation Regulation*, Part II, *Cargo Movement*, are applied. These procedures standardize and automate document flow. The Army's Surface Deployment and Distribution Command (SDDC) is responsible for the administration of the procedures prescribed by DoD 4500.9-R, which uses Military Standard Requisitioning and Issue Procedures (MILSTRIP) to create and exchange standard shipping data for recording and reporting shipping status and to control materiel movements in the Defense Transportation System (DTS).

Maintenance

Each military service is delegated the responsibility for defining tasks to be performed at the various levels of the maintenance organizational chain. This ensures effective and economic support of weapons and equipment. An analytical system is used to identify the maintenance level at which an item will be replaced, and repaired or thrown away based on economic considerations and operational readiness requirements. This Level of Repair Analysis is usually performed by a prime contractor or Original Equipment Manufacturer (OEM), subsequently approved by the weapon system program manager.

There are three generic levels of maintenance in the Department of Defense. The level of maintenance employed by each of the U.S. military services is dependent upon the weapon system being maintained. Nor do all FMS customers employ these three levels all the time. Each weapon system sale must take into consideration the FMS customer's operating requirements, maintenance capability and investment cost, and a tailored maintenance plan must be developed for that specific customer.

The basic definitions of the three levels of maintenance are:

- **Organizational or field level maintenance.** This level of maintenance is performed by individual organizations on their own equipment. Organizational maintenance duties include inspecting, servicing, lubricating, and adjusting; and replacing parts, minor assemblies, and subassemblies.
- **Intermediate level maintenance.** This level of maintenance is performed by separate maintenance activities to support user organizations. Intermediate maintenance is normally accomplished in fixed or mobile shops, tenders, shore-based repair facilities, or by mobile teams. Its phases include calibration, repair, or replacement of damaged or unserviceable parts, components, or assemblies; the manufacture of critical non-available parts; and providing technical assistance.
- **Depot level maintenance.** This level of maintenance is performed by designated maintenance activities to augment stocks of serviceable materiel, and to support organizational and intermediate maintenance activities. It employs more extensive shop facilities, equipment, and personnel of higher technical skill than are available at the lower levels of maintenance. Its phases include inspection, test, repair, modification, alteration, modernization, conversion, overhaul, reclamation, or rebuild of parts, assemblies, subassemblies, components, equipment

end items, and weapon systems. It is normally accomplished in fixed shops, shipyards, and other shore-based facilities, or by depot field teams. It can be performed by DoD personnel, by commercial contractors, or by Original Equipment Manufacturers (OEM).

Customer countries can establish FMS cases to get items repaired, most commonly at the depot level. Customer country repair requirements are integrated with the repair programs of the military services and are accomplished by organic military repair facilities (i.e., Army Maintenance Depots, Air Force Logistics Centers, Naval Aviation Depots, Naval Shipyards) or by civilian contractors.

Supply

Supply is another term that has a variety of meanings. Often, the term supply is used in a collective sense, much like logistics, to include acquiring, managing, receiving, storing, and issuing materiel to required forces. Logistics support to FMS cases potentially encompasses all of these functions. Within the services and the Defense Logistics Agency (DLA) are the organizations responsible for acquiring/managing supplies and for the materiel management functions of receiving, storing, and distributing items.

Item Classification

There are several ways to classify and manage items in the DoD supply system. Primary Items, also called Major Items, are a final combination of end products, component parts, and/or materials which are ready for their intended use, e.g., aircraft, ships, tanks, weapon systems, etc. Each of the military services manages its own major items. Due to the high acquisition costs involved and the attendant absence of available stocks, major items acquired through FMS are usually a procurement lead-time away. Note that aircraft engines are managed as primary items.

Secondary items are all items not defined as Primary or Major Items. These include: repairable components, sub-systems and assemblies, consumable repair parts, bulk items and materiel, subsistence, and expendable end items (including clothing and other personal gear). Secondary items generally fall into two categories.

- Repairable Items are generally repairable and nonexpendable items, e.g., radios, generators, etc.
- Consumable Items are usually low-cost and expendable items, such as gears, bearings, and gaskets. Non-recoverable items are normally not repaired at the depot level of maintenance, if repair is possible at all.

Integrated Materiel Management

One objective of integrated materiel management is to minimize or eliminate duplication of item management. The management (on a wholesale basis) of a given item for all of the DoD is assigned to a single inventory control point (ICP).

Approximately 90 percent of the items in the DoD supply system have a single manager. The majority of these items are managed by the Defense Logistics Agency (DLA) and its Supply Centers. However, the ICPs in the military also serve as single item managers. Most of the items which remain under military service management are peculiar to the individual service or directly related to the operation of a particular weapon system, or are identified as high cost items worthy of service management.

Department of Defense Logistics Organizations

Inventory Control Points

The primary players in the DoD wholesale system are the Inventory Control Points (ICPs), i.e., Army Major Subordinate Commands, Air Force Air Logistics Centers and Products Centers, the Navy Inventory Control Point, the Navy Systems Commands, the Defense Logistics Agency Supply Centers and various depots or stock points. They play a major role in satisfying both U.S. and foreign military requirements placed on our logistics systems.

Prior to discussing the role of ICPs and depots in satisfying these requirements, it is helpful to understand the functions of these activities. ICP functions include: determining requirements; establishing stock levels; initiating procurements; and providing distribution, overhaul, and disposal management for secondary items. While the ICPs participate in the management of major end items/systems, i.e., tanks, aircraft, ships, etc., they do not have primary responsibility for determining the requirements for these items.

An ICP's role in security assistance begins with the receipt of taskings from agencies that write FMS Letters of Offer and Acceptance (LOAs) for those items for which the ICP has management responsibility. ICPs help develop LOAs by providing pricing information for items such as ammunition and support equipment.

Major item sales cases usually include the repair parts required to support the major item for a 12-24 month period. Those repair parts are considered "initial support" or "concurrent spare parts." (This will be discussed in Chapter 13.) The ICPs are responsible for recommending the range and quantity of repair parts to be included for initial support, based upon operational use factors provided by the purchaser.

Cooperative Logistics Supply Support Arrangements (CLSSAs) require a recommended list of repair parts to be stocked in support of the customer country. ICPs develop the list which includes recommended quantities and the cost for each item.

Upon acceptance and implementation of the LOA, the ICPs and the DLA Supply Centers are the supply activities responsible for satisfying the foreign customer's request for items which they manage. Within guidelines established by DoD, they may either issue items directly from available stocks or, when necessary, by procuring the materiel.

Within the Department of the Navy, there are four Systems Commands and one Supply Command that manage primary and secondary Navy or United States Marine Corps (USMC) assets.

- In the Naval Supply Systems Command, is one Navy ICP physically situated in two locations (<http://www.navicp.navy.mil/>). The two activities that make up the ICP are the former Ships Parts Control Center (SPCC) located at Mechanicsburg, Pennsylvania, and the former Aviation Supply Office (ASO) located at Philadelphia, Pennsylvania.
- The Naval Air Systems Command (NAVAIR) (<http://www.navair.navy.mil/>), headquartered in Patuxent River, Maryland, manages Naval aircraft and air-to-air missiles, as well as their support equipment and repair depots.
- The Naval Sea Systems Command (NAVSEA) (<http://www.navsea.navy.mil/>), headquartered in Washington DC, manages Navy ships, boats and submarines, as well as surface-to-air missiles and their associated support equipment and repair depots. The Naval Space and Warfare Systems Command (SPAWAR), <http://enterprise.spawar.navy.mil/>, headquartered in San Diego, California, manages the Navy's communications-electronics systems.
- The Navy's Facilities Engineering Command, <http://www.navfac.navy.mil/>, headquartered in Washington DC, manages the planning, design and construction of shore facilities for U.S. Navy activities, as well as FMS customers, around the world.
- The Marine Corps Systems Command (<https://www.marcorsyscom.usmc.mil/default.asp>), headquartered in Quantico, Virginia, also develops and manages Marine Corps FMS cases for the Department of the Navy.

Within the Army structure, there are four ICPs with Security Assistance Management Directorates (SAMD).

- The Tank Automotive and Armaments Command (TACOM), headquartered in Warren, Michigan, manages tracked and wheeled vehicles and support equipment.
- The Aviation and Missile Command (AMCOM), located in Huntsville, Alabama, manages missiles, helicopters, and associated equipment.
- The Communications-Electronics Command (CECOM), located at Fort Monmouth, New Jersey, is responsible for the Army's communications and cryptographic equipment.
- The Joint Munitions Command (JMC), headquartered at Rock Island Arsenal, Illinois, is the single manager of munitions for the DoD.

These ICPs all belong to the Army Materiel Command (<http://www.amc.army.mil/>). The Army ICPs manage not only the primary (major) end-items, but also the secondary and support equipment and repair facilities for their respective major items.

Within the Air Force, materiel management responsibility overlaps among the three Products Centers and the three Air Logistics Centers (ALCs). Primary items (mostly aircraft) are managed at the Products Centers, while depot repairables and secondary support items are managed by the Air Logistics Centers.

The Products Centers include:

- Aeronautical Systems Center (ASC) at Wright-Patterson AFB, Ohio;
- Air Armaments Center (AAC) at Eglin AFB, Florida; and
- Electronic Systems Center (ESC) at Hanscom AFB, Massachusetts.

The Air Logistics Centers include:

- Warner Robins Air Logistics Center, Robins AFB, Georgia;
- Oklahoma Air Logistics Center, Tinker AFB, Oklahoma; and
- Ogden Air Logistics Center, Hill AFB, Utah.

All these organizations belong to the Air Force Materiel Command (AFMC) (<https://www.afmc-mil.wpafb.af.mil/>), and have Security Assistance responsibilities.

International Logistics Control Organizations

Annual security assistance demands on the military supply systems have grown to nearly one million requisitions per service. In order to manage, account for, and control these requisitions, as well as ensure a smooth interface with the normal service supply organizations, each of the providing services has found it both desirable and necessary to establish a central control point for security assistance supply actions. Unlike other organizations in the logistics system that serve both U.S. and foreign requirements, these organizations are devoted completely to security assistance. These organizations are generally called International Logistics Control Organizations (ILCOs) (also discussed in Chapter 4).

International Logistics Control Organizations Functions

The U.S. Army Security Assistance Command, New Cumberland, Pennsylvania (USASAC-PA) serves as the Army ILCO. The USASAC operates at two geographically separated locations. The Headquarters and Deputy for Plans and Management, USASAC-Fort Belvoir (USASAC-VA) is located at Fort Belvoir, Virginia. The USASAC Commander also serves as the Director of Security

Assistance on the Army Materiel Command (AMC) Headquarters Staff. The USASAC Deputy for Operations is the ILCO, located at New Cumberland, Pennsylvania.

The U.S. Navy International Programs Directorate (NAVICP-OF) of the Navy Inventory Control Point is the Navy's ILCO. NAVICP is a subordinate organization of the U.S. Navy Supply Systems Command (NAVSUP). NAVICP also operates at two geographically separate locations: Mechanicsburg, Pennsylvania, and Philadelphia, Pennsylvania. NAVICP-OF is in Philadelphia.

The Air Force Security Assistance Center (AFSAC), the Air Force ILCO, is a major component of the Air Force Materiel Command (AFMC). Both are located at Wright-Patterson Air Force Base, Ohio.

Although each of the ILCOs has its individual responsibilities, operating techniques, and interfaces, there are many functions generally applicable to all three. They serve as the connecting link between the security assistance customer and the service supply systems. In this role, each ILCO employs a country desk officer (or country program manager, or country case manager), who is the primary contact point for materiel support for assigned countries. The country desk officer monitors FMS cases and responds to supply facilities to direct shipments. The country desk officer maintains and reports the current status for programs and cases.

In order to manage their programs, the ILCOs operate the service security assistance computer data systems: the Army Centralized Integrated System for International Logistics (CISIL), the Navy Management Information System for International Logistics (MISIL), and the Air Force Security Assistance Management Information System (SAMIS). The ILCOs establish programs and cases, validate and pass requisitions, account for obligation/expenditure authority, record supply status, interface with service accounting and supply data systems, and produce program reports and statistics.

Once the program data is available and obligation authority has been established, the ILCO may then start to process requisitions. All security assistance requisitions must be prepared in accordance with standard MILSTRIP procedures. Requisitions for defined order cases are prepared at the ILCOs normally upon receipt of an implemented case. Requisitions for CLSSA and blanket order cases are prepared by the customer. Every requisition for security assistance must be validated and passed by the ILCO before it can enter the U.S. supply system. This is usually done automatically by the ILCO computer data system, which checks the requisition against an authorized FMS case, ensures that the required funding is available, records the estimated cost of the requisitioned materiel against the appropriate account, and routes the requisition to the appropriate ICP. If all checks are not met, the requisition is routed for manual review by the country desk officer or case manager.

It is important to note that the ILCO is not a supply activity. No materiel is controlled by the ILCO and no decisions are made to issue materiel from stock or from procurement. After the validation of the requisition, the ILCO passes it to the normal source of supply, an ICP.

In accordance with the MILSTRIP procedures, supply and shipment status is provided to the customer to advise of the progress in filling any requisitions. This information is provided by the supply activity to the ILCO, which records this status in the computer data system and in turn provides the status to the customer. In the case of the Air Force, status is provided directly to the customer with a copy to the Air Force Security Assistance Center (AFSAC) to update SAMIS.

By maintaining the status of all requisitions in process and the financial status of each case, the ILCO can produce a variety of management reports for use by the military departments, the overseas security assistance organization (SAO), and customer country managers. These reports are used for day-to-day monitoring of the program as well as periodic country or program reviews. The ILCOs also report FMS deliveries monthly to Defense Finance and Accounting Service - Denver (DFAS-DE) for billing and record purposes. In some instances, the ICPs report their deliveries directly to DFAS-DE, and provide the ILCOs with copies of the reports. The ILCOs use these reports to maintain

current requisition, case, and financial records. In other situations, delivery information is provided first to the ILCO which, in turn, provides consolidated delivery status to DFAS-DE.

Customer countries may maintain liaison officers to review program and requisition status with the ILCO desk officers. These liaison officers may, in some instances, initiate or modify requisitions on behalf of their government. Country purchasing office representatives or foreign embassy personnel from Washington, D.C., often conduct the required liaison with the ILCO. However, for a growing number of countries, a Foreign Liaison Officer (FLO), Security Assistance Foreign Representative (SAFR), or Security Assistance Liaison Officer (SALO) is located at the ILCO.

Defense Logistics Agency

The Defense Logistics Agency (DLA) has inventory management responsibility for about 93 percent of active National Stock Numbers (NSNs) in the DoD supply system. DLA supplies more items and processes more requisitions than all of the other services combined. It is therefore important for supply personnel in any of the services to understand the DLA system and how it supplies the items assigned to it.

The Defense Logistics Agency maintains a weapon systems approach toward materiel management. There are four Inventory Control Points (ICPs). Each is assigned responsibility for a portion of the same three million items used by the services but supplied by DLA. The four DLA ICPs and their responsibilities are as follows.

- The Defense Supply Center Columbus (DSCC), at Columbus, Ohio, is the lead ICP for Land, Maritime and Missile weapon systems.
- The Defense Supply Center Richmond (DSCR), at Richmond, Virginia, is DLA's lead center for aviation support, and environmental products. The DSCR also serves as the storage and distribution center of maps.
- The Defense Energy Support Center (DESC) at Ft. Belvoir, Virginia, supplies bulk petroleum products, alternative fuels, performs direct delivery, and manages terminal facilities and distribution.
- The Defense Supply Center Philadelphia (DSCP) at Philadelphia, Pennsylvania, annually provides over \$5.46 billion worth of food, clothing, textiles, medicines, medical equipment, general and industrial supplies and services to the DoD, to other government agencies, and to FMS customers.

These four DLA ICPs receive and process incoming requisitions from customers worldwide and direct shipment from these depots using MILSTRIP/MILSTRAP procedures in the same manner as previously explained for other military service ICPs and their primary depots. For FMS customers, these requisitions are passed to DLA from the ILCOs.

The Defense Logistics Agency is also assigned a number of additional DoD-wide responsibilities.

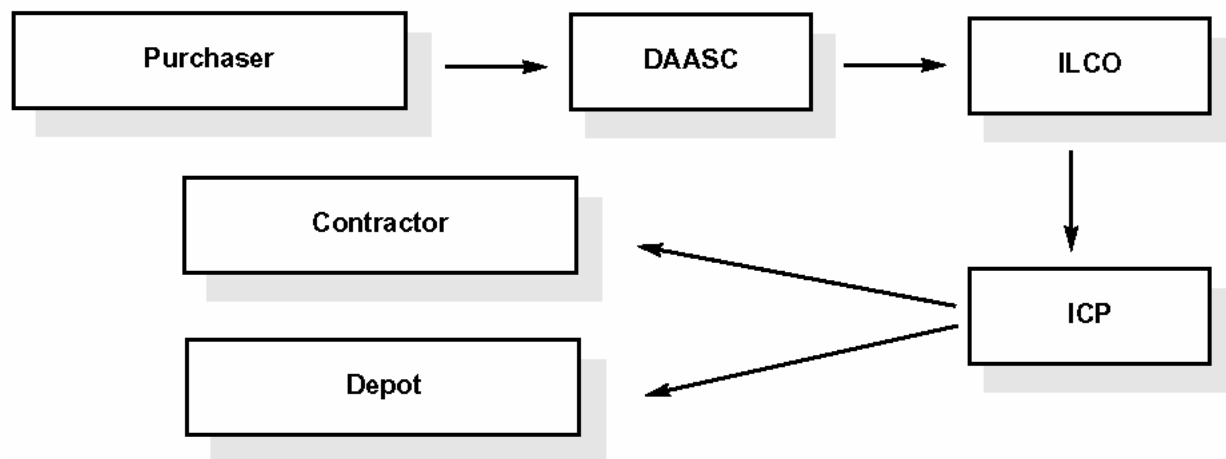
- DoD-wide cataloging of items is performed by the Defense Logistics Information Service (DLIS), Battle Creek, Michigan, as the National Codification Bureau for the U.S.
- DoD materiel utilization and surplus property disposal; performed by the Defense Reutilization and Marketing Service (DRMS), headquartered in Battle Creek, Michigan.
- The Defense Distribution Center (DDC), New Cumberland, Pennsylvania, operates the wholesale warehouse depots located on Army, Navy, Air Force, and Marine Corps facilities.
- The Defense Automatic Addressing System Center (DAASC) is the official repository for selected DoD publications and databases. DAASC receives, edits, and routes logistics transactions for the Military Services and Federal Agencies, providing information about

anything, anywhere, anytime, to anyone in the DoD and Federal Logistics Community. All electronic FMS transactions are routed through DAASC.

- The Defense National Stockpile Center (DNSC), Ft. Belvoir, Virginia, controls the national reserve of cobalt, diamonds, lead, zinc, tin, and other minerals. This is the only DLA center that has no involvement with foreign customers.

It is important to note that, although the Defense Logistics Agency (DLA) manages the vast majority of items, the DLA supply management mission does not have a central International Logistics Control Organization (ILCO) for the management of security assistance programs. Rather, foreign requisitions flow to DLA through the military department ILCOs. It is interesting to note that a majority of military department-processed FMS requisitions are for DLA-managed consumable items supplied by the DLA supply centers.

**Figure 12-1
Logistics Communications**



Requisition Process Overview

The typical FMS ordering process starts when the U.S. Implementing Agency (IA) receives Obligation Authority (OA) from the Defense Finance and Accounting Service (DFAS) upon acceptance of a LOA by an FMS customer. The International Logistics Control Organization (ILCO) establishes a block of requisition numbers for use by the weapon system/program managers when ordering various services and support materiel requirements, and passes Expenditure Authority (EA) to the various logistics managers for ordering purposes. The logistics managers initiate requisitions for spare parts, support equipment and technical manuals, assigning a unique document number to each transaction. These document numbers are used to track materiel and services through the ordering and delivery process, and materiel is “pushed” to the FMS customer. The ILCO records all requisitions in a Service-unique database, and forwards the requisitions to the appropriate item manager for issue from either DoD-owned stock, or for procurement from a contractor.

When the FMS case is a blanket order or Cooperative Logistics Supply Support Arrangement (CLSSA), the customer initiates the requisition, assigns a unique document number, and passes the requirement to the ILCO. Upon determining that the FMS case is valid and obligation authority exists, the ILCO again records the requisition in its database and passes the requisition to the item manager.

Regardless of the entry point, all logistics information passes through an information router, the Defense Automatic Addressing System, where each transaction is recorded for future reference.

Military Standard Requisitioning and Issue Procedures

Military Standard Requisitioning and Issue Procedures (MILSTRIP) is a set of procedures that prescribe standard forms and codes adaptable to high-speed communications and automatic data processing for use in requisitioning and issue of DoD materiel. Chapter 6 of DoD 4000.25-1-M, *Military Standard Requisitioning and Issue Procedures (MILSTRIP)*, covers MILSTRIP procedures for FMS purchasers. There are also several service developed brochures describing MILSTRIP procedures for FMS customers. There are several unique MILSTRIP codes and procedures for FMS because the structure of an FMS document number is very different from a domestic requisition document. Figure 12-2 illustrates the unique MILSTRIP entries for FMS.

Figure 12-2
FMS Unique Record Positions (RP)

RP. 30 is the Implementing Agency (IA)
 RP 31-32 is the Customer Country Code
 RP 33 is the Mark For Code
 RP 34 is the Delivery Term Code (DTC)
 RP 35 is the Type of Assistance (TA) Code
 RP 36 is the last digit of the year of the request
 RP 37-39 is the Julian Date
 RP 40-43 is the Serial Number
 RP 44 indicates Recurring or Non-recurring requisition
 RP 45 identifies the Purchaser's Service or Agency
 RP 46 identifies the Offer Release Code
 RP 47 is the Freight Forwarder Code
 RP 48-50 is the Case Designator

DOCUMENT IDENTIFIER			ROUTING IDENTIFIER			MSS			STOCK NUMBER										UNIT OF ISSUE		QUANTITY							
									CLASS		NIIN																	
											NCB CODE																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

DOCUMENT NUMBER										SUPPL ADDRESS		SIGNAL CODE		FUNDING CODE		DIST		PROJ CODE											
				DATE		SERIAL NUMBER		DEMSJF		SVC																			
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59

PRIORITY CODE		RAD/ RDD		ADV CODE		SUPPLY/SHIPMENT STATUS														
60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Elimination of the Military Standard Systems

The Military Standard Systems (MILS) have communicated logistics and financial requirements throughout DoD for over 40 years. However, the rigid fixed-length MILS formats are functionally constraining, technologically obsolete and unique to DoD. The limited data fields have become impediments to DoD's transformation goals, and have severely lagged behind commercial practices using Web-compliant technologies. In January 2004, the Undersecretary of Defense for Acquisition,

Technology and Logistics [USD(AT&L)] mandated an immediate end to the use of the MILS and a total conversion of information exchange systems within DoD to new Defense Logistics Management Standards (DLMS). The DLMS are founded on American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 standards and include both X12 transactions and World Wide Web Consortium (W3C) compliant Extensible Markup Language (XML) schemas. The DLMS supports information exchanges using XML as well as ANSI ASC X12. These information exchange media can support the unique tracking of items throughout the supply chain using unique identification technology (UID) as well as any other supply chain improvements, and will enable DoD to track an item through its life cycle across the entire supply chain.

The Defense Security Cooperation Agency (DSCA) is currently evaluating the impact of this mandatory conversion on FMS customers' ability to communicate their supply demands to the DoD. While some FMS customers will welcome the conversion and appreciate the benefits of DLMS, other FMS customers will not have the technological capability to change immediately. For the near-term, MILSTRIP will continue to serve as the supply language between the FMS customer and the DoD.

North Atlantic Treaty Organization Codification System

The NATO Codification System (NCS) has been in place since the mid-1950s. It provides standards for the use of a common stock identification system throughout the NATO alliance. We tend to take this common language of NATO logistics for granted in field operations. The NCS is quickly appreciated, however, when the operational commander finds himself in a joint environment with partner countries each using something different.

The NCS is an invisible partner in the day-to-day business of logistics. Beginning in the United States, and then expanding to NATO, multinational use of the NCS today is growing at a faster rate than ever before.

Origins and Governance

The NCS provides NATO countries with a uniform and common system for the identification, classification, and stock numbering of items of supply. It is based on the U.S. Federal Catalog System (FCS), which is operated by the Defense Logistics Information Service (DLIS), a field activity of the Defense Logistics Agency (DLA) located in Battle Creek, Michigan. The foundation for this system within NATO rests in two NATO Standardization Agreements (STANAGs). STANAG 3150, *Uniform System of Supply Classification*, adopts the U.S. system of classifying supplies as the standard within the Alliance. STANAG 3151, *Uniform System of Item Identification*, adopts other basic standards for identification of supply items and sets the governing structure in place for the NCS.

The NCS is governed by the Allied Committee 135 (AC/135) - NATO Group of National Directors on Codification. This committee is composed of representatives from each NATO member nation and a participant from the NATO Maintenance and Supply Agency (NAMSA).

Common Rules and Data Standards

The system provides NATO allies with a common identification language for use within national activities and between member countries. Non-NATO countries that are sponsored members of the NCS also benefit from the system. The foundation of the NCS is the principle that the responsibility for the codification of an item rests with the country that manufactures it and controls its design. This is true even if the item is not used within the military forces of that country. Common rules and data standards (including a Data Element Dictionary) allow for improved communication between members. Using coded data allows for automatic translation into national languages through decode tables.

Item Identification

Item identification is the most important element of the codification system because it establishes a unique identification for every item of supply. The identification consists of the minimum data required to establish clearly the essential characteristics of the item, i.e., those characteristics that give it a unique character and differentiate it from all others.

The vast number of items of supply in the NCS has made it necessary to establish manageable commodity classifications of items, by family grouping. The NATO Supply Classification system provides for discrete commodity groups and classes. Each group consists of items of the same physical or performance characteristics or the same application. Within each group, there are more specific classes, which further define the specific commodity-type of items included. For example, one large commodity group of items is Hand Tools, identified as Group 51. Within the large group of hand tools, there are sub-classes that differentiate the types of hand tools (i.e., non-powered, powered, tool boxes and kits, and sets of hand tools). A unique number identifies each of the sub-classes, for example:

5110	Non-powered, edged hand tools
5120	Non-powered, non-edged hand tools
5130	Power driven hand tools
5140	Tool and hardware boxes
5180	Sets, kits and outfits of hand tools

To achieve the three NCS objectives of (1) increasing the efficiency and effectiveness of logistics operations; (2) facilitating data handling; and (3) minimizing costs to user nations, it is essential that each item of supply be assigned a unique name, classification, identification and a NATO or National Stock Number (NSN).

Efforts are on going to integrate and cross relate the NCS to evolving commercial standards for classification and identification of products. The Electronic Commerce Code Management Association (ECCMA) has determined that the NCS structure for item characteristics description is a best practice which they are using as a baseline in their attribute definition standard for e-commerce.

North Atlantic Treaty Organization Stock Number

Countries that participate in the NCS follow common standards and techniques to assign NATO Stock Numbers (NSNs) to items of supply in their defense inventory. The National Codification Bureau (NCB) within each country centrally assigns their national NSNs. The NCB for the United States is the Defense Logistics Information Service (DLIS) in Battle Creek, Michigan. The assignment of an NSN fixes the identity of each distinctive item of supply. All NSNs are uniform in composition, length, and structure. Each is represented by a thirteen digit number, which can be divided into three unique parts:

- The first four digits are the NATO Supply Classification (NSC) code, which relates the item to the group and class of similar items;
- The next two digits indicate the assigning NCB code (each country has its own two-digit NCB code—the United States uses “00” and “01”;
- The final seven digits are assigned sequentially and have no inherent significance. However, this number relates to one and only one item of supply within the codifying country.

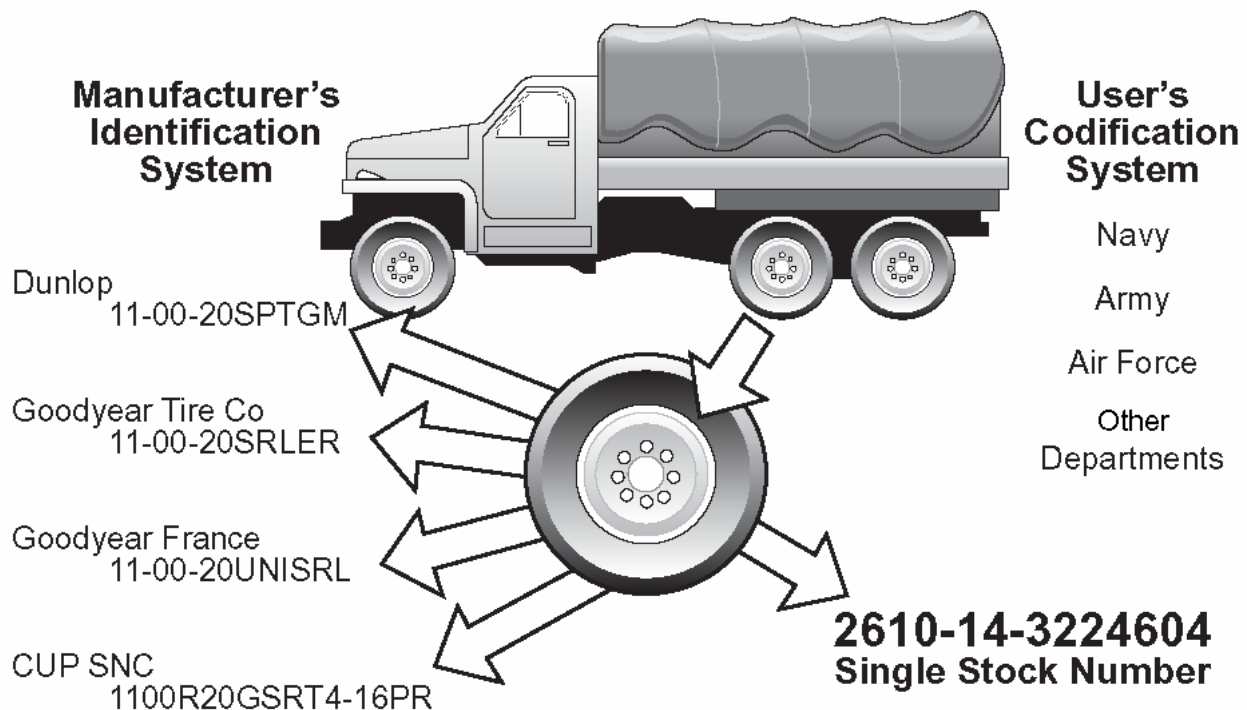
Single Stock Number

Within NATO, the NCS currently contains about sixteen million active NSNs (seven million for the U.S. and nine million assigned by other NATO countries). The items represented range from hand grenades to guided missiles, from propeller blades to space vehicles, and from soap dishes to washing machines.

Categories of Item Data

The data collected on supply items is stored in national databases for immediate retrieval and use. Users of the NSNs may access details of items. Common descriptive guides, available to all participating countries, allow for storage and exchange of coded physical and performance characteristics for each NSN. Using a suitable decoding tool, translation of these coded descriptions is possible. Management data may be stored for NSNs and supports all logistics disciplines, including such data as source of supply, unit of issue, packaging information, handling criteria, hazardous materials coding, and disposal information.

Figure 12-3
NATO Stock Number (NSN)



NATO Stock Number Assignment and User Registration

The U.S. NCB catalogs supply items used by our NATO partners and other foreign allies. More than 36,000 items were cataloged and assigned unique NSNs during calendar year 2002. These items represent supply materials manufactured in the U.S. but intended for use within NATO or by other allied forces supported under a Foreign Military Sales (FMS) case. For every NSN assigned, the responsible NCB must:

- Verify that the item is procurable;
- Research each item to obtain supporting technical data;
- Name the item;
- Classify it;

- Describe each item; and
- Assign the NSN.

The 25,000 new NSNs assigned by the U.S. NCB during the last year represent about one quarter of the total annual NSN assignments made by all Defense Logistics Agency (DLA) personnel.

On behalf of the U.S. military services, the U.S. NCB also processed over 6,500 requests to other NATO country NCBs for assignment of foreign (non-U.S.) NSNs. This total represents items of foreign origin (manufacture) incorporated into our U.S. operational force structure.

Around 43 percent of all of the 6.6 million “active” U.S. National Stock Numbers have at least one allied user “registered” as an interested user. By a process known as “user registration,” allies may establish a record of their national interest in a U.S. NSN. Recorded users may elect to receive notification of changes made to the NSNs that they have an interest in. There are currently fifty separate foreign countries recorded as users on various NSNs in the U.S. catalog system.

It is necessary to record each manufacturer’s part numbers against codified items. A five-character NATO Commercial and Government Entity Code (NCAGE) is assigned to each manufacturer to meet this requirement. The code reflects the source and location of technical documentation for an item. Each NCB assigns the codes for its national manufacturers and these are recognized and exchanged between NCS members.

The United States is the proponent for the official naming and classification standards. It maintains these codification system support files at each NCB by scheduled electronic update.

Benefits of the North Atlantic Treaty Organization Codification System

The NATO Codification System (NCS) is an integral part of supply operations throughout the world. It furnishes accurate information to all participating countries on the characteristics of millions of items. It simplifies the solution of supply data management problems by providing quick responses from a single, up-to-date source. The NCS offers many significant advantages to NATO and non-NATO countries, as well as to private sector participants outside the defense community.

There are several sources of catalog data available for use by the FMS purchaser.

Federal Supply Catalogs

The Defense Logistics Information Service (DLIS) is the Defense Logistics Agency (DLA) field activity designated as the manager of the Federal Catalog System (FCS). The FCS is the official U.S. government program under which equipment and supplies are uniformly named, described, classified, and stock numbered. DLIS offers a range of products containing FCS information. Certain products are available only to the NATO and NATO-sponsored countries because they contain proprietary data and characteristics data of countries other than the U.S. Sponsorship agreements contain language regarding the protection of restricted data. The restricted publications include the following.

- **Federal Logistics Data (FED LOG).** A four-disk CD-ROM product also available as a single DVD, FED LOG can be searched using Part Number or Partial Part Number, NSN/NIIN/PSCN, Item Name or Partial Item Name, CAGE Code or NCAGE and CAGE Code to Part Number Pick list, Supplier Name or Partial Supplier Name, Item Name Code (INC), and Combination Searches. Data is displayed in the following groups: Reference Number, Management Data, including Interchangeability and Substitutability (I&S), CAGE/Supplier, Characteristics, and Freight. In addition to the data listed above, it contains service unique data for Army, Navy, and Air Force. DLIS also has a new single DVD version of FED LOG consisting of the data contained on the four basic CD-ROM set.

- **FED LOG Characteristics Search.** This product works interactively with FED LOG but must be purchased separately. This allows the user to search for NSNs by technical characteristics defined by the user.
- **FED LOG NIIN Drawings.** This product works interactively with FED LOG but must be also purchased separately. This product, along with the FED LOG Characteristics Search product, takes the place of the former "IL."

The following CD-ROM products are available to all customers.

- **H-Series CD-ROM.** The H-Series CD-ROM product contains the following Cataloging Handbooks: H2, Federal Supply Classification (FSC); H3, DoD Ammunition Codes; H4/H8, Commercial and Government Entity (CAGE) Codes; H5, Corporate Complex Data; and H6, Federal Item Name Directory (FIND).
- **Multilingual ACodP-2/3 CD-ROM.** The Multilingual Allied Codification Publication (ACodP-2/3) is a newly developed CD-ROM product that contains data equivalent to the United States H2 and H6 in other languages. This CD contains data in nine languages including English. The other languages are German, French, Czech, Italian, Spanish, Dutch, Polish, and Hungarian.
- **Master Cross Reference Data (MCRD).** The MCRD CD-ROM is intended to be used by anyone needing to relate reference and stock numbers assigned to items in the Federal Catalog System; to verify the manufacturer of an item when a reference number or stock number is known; to determine whether the reference number is item-identifying or requires additional data to correctly identify the item of supply; or to cross-reference a superseded/cancelled number to a valid one. The MCRD contains the National Stock Numbers (NSNs), reference numbers, and Commercial and Government Entity (CAGE) Codes cross-referenced to each other, supplemented with related data.
- **Management Data (MD) and Interchangeability and Standardization (I&S).** This CD-ROM product contains management data to assist requisitioners in acquiring and accounting for items of supply, cross referenced to NSNs. It includes data like Acquisition Advice Code (AAC), Source of Supply (SOS), Unit of Issue, Price, Reparability Coding, and so forth. The Interchangeability and Substitutability (I&S) portion provides a reference source for determining the interchangeability and/or substitutability of items of supply.
- **DEMIL Catalog.** The DRMS DEMIL Reference CD-ROM is intended to be used by activities involved in property disposal to determine what special restrictions (if any) apply in the demilitarization of disposable materiel. The DRMS DEMIL Reference CD-ROM provides Demilitarization (DEMIL) Codes for all active and inactive National Stock Numbers (NSNs) that are registered in the Federal Logistics Information System (FLIS) data base, except for the following: National Security Agency (NSA) Items, Security Classified Items, and Items without an Assigned Demilitarization Code. This product is produced bi-monthly.
- **Medical Catalog.** The MEDICAL CATALOG (MEDCAT) on CD-ROM is designed for all Government and non-Government activities. Access to detailed, descriptive data and pricing information on pharmaceutical and medical/surgical items is provided. The MEDCAT provides logistics information on approximately 60,000 medical and medical related items.
- **Characteristics Data.** The Characteristics CD was developed to provide characteristics information on each National Stock Number (NSN) in the Federal Catalog System, or to obtain the NSN when an item name or characteristic(s) is known. CHAR DATA contains information that describes the NSN. It contains the Item Name, Environmental Attribute Codes (ENACs), Master Requirement Code (MRC), Requirement Statement and the Clear Text Reply for each NSN.

- **Tailored Data Product Extracts.** Tailored Data Products (TDP) are extracts of data from the Federal Logistics Information System (FLIS), and are created according to the specific needs of the customer. The FLIS contains comprehensive cataloging data on all the items of supply procured by the Federal Government. Based on customer requirements, complete cataloging data or any part of it can be extracted and provided on various forms of output media. Working closely with the customer, DLIS can jointly determine the data, format, and output media requirements. DLIS can provide TDPs on a one-time basis, or at regular intervals (monthly, quarterly, etc.).

Descriptions of these products can be found on the Defense Logistics Information Service (DLIS) web site at: www.dlis.dla.mil. Pricing information for subscriptions is contained at www.dlis.dla.mil/subscription/govorder1.asp. U.S. Federal Catalog System publications are available to FMS customers either through an FMS case negotiated with DLIS or through cases with the Military Departments (MILDEPs). Additional information about the NATO Codification system can be found at: <http://www.nato.int/structur/AC/135/welcome.htm>.

The FMS purchaser can obtain DLIS catalogs directly from DLIS or through cases with the MILDEP. Requests for information about DLIS information products or placing an order should be directed to Commander, Defense Logistics Information Service, ATTN: DLIS-SD, 74 North Washington Street, Battle Creek, MI 49017-3084, DSN 932-4310/4328 Ext 5721, Commercial (616) 961-4310/4328 Ext 5721, FAX (616) 961-4760, or E-mail: <mailto:fms@dlis.dla.mil>

DLIS also offers a wide range of training classes related to cataloging and the Federal Catalog System and the use of DLIS's information products. Additional information is available from Commander, Defense Logistics Information Service, ATTN: DLISVST, 74 North Washington Street, Battle Creek, MI 49017-3084. The telephone number is (616) 961-4478/4829, FAX: (616) 961-4307, E-Mail: <mailto:dlis.tng.@dlis.dla.mil>.

DLIS has a home page on the World Wide Web. The home page has a large amount of information about DLIS, DLIS's products, services, prices and contact points, as well as links to other U.S. government home pages. The website is <http://www.dlis.dla.mil>.

North Atlantic Treaty Organization Codification System Sponsorship

More and more countries are seeking and receiving sponsorship within the NCS. Sponsored countries sign an agreement to exchange codification data and to abide by the rules and procedures of the system. Among other things, the rules require countries to provide equivalent safeguards to protect sensitive and proprietary data. A non-NATO country seeking sponsorship makes a written request to a NATO country or the Secretariat of AC/135. All NATO member nations then determine their national position on the sponsorship. Each member provides written concurrence or non-concurrence on the request. Within the United States, DLIS collaborates on the national position, through HQ DLA, to the Deputy Under Secretary of Defense (International and Commercial Programs) for official comment. The AC/135 Group of Directors grants the country NCS sponsorship upon agreement by all NATO member countries, and upon signing of the official sponsorship agreement by both the representative of the applicant country and the Chairman of the AC/135. The AC/135 signs sponsorship agreements on behalf of NATO, and a responsible representative from the defense ministry of the sponsored country signs on its behalf. Information about NCS sponsorship is kept up-to-date at the following web site <http://www.dlis.dla.mil/nato/default.asp#Sponsorship>. Information about the NATO Ammunition Data Base (NADB) is available by consulting web site <http://www.dlis.dla.mil/nato/natodata.asp#ammo>

In addition to the nineteen members of NATO, nearly thirty nations around the world have been accepted as sponsored members of the NCS. Most recently approved for sponsorship are the nations of Russia and Oman.

Table 12-1
NCS Sponsorship

NATO COUNTRIES	SPONSORED COUNTRIES	COUNTRIES USING THE NCS
Belgium	Albania	Israel
Bulgaria	Argentina	Japan
Canada	Austria	United Arab Emirates
Czech Republic	Australia	
Denmark	Brazil	
Estonia	Chile	
France	Croatia	
Germany	Egypt	
Greece	Fiji	
Hungary	Finland	
Iceland	Macedonia	
Italy	Indonesia	
Latvia	South Korea	
Lithuania	Kuwait	
Luxembourg	Malaysia	
Netherlands	New Zealand	
Norway	Oman	
Poland	Philippines	
Portugal	Russia	
Romania	Saudi Arabia	
Slovakia	Singapore	
Slovenia	South Africa	
Spain	Thailand	
Turkey	Tonga	

United Kingdom

Ukraine

United States

United Nations

Pacific Area Cataloguing System

The Pacific Area Cataloguing System (PACS) is an initiative of the Pacific Area Senior Officers Logistics Seminar (PASOLS), sponsored by the Commander, U.S. Pacific Command. Its purpose is to establish common cataloging rules within the Pacific region based on the NCS. Twenty-one countries participated in a series of working group meetings beginning in 1995. This led to the establishment of the "PACS Forum" in 1997. The United States and Canada have taken a leading role in forming the group and have provided the link between PACS and NATO. Thirteen countries have formally signed the PACS charter, and other nations, such as Japan and China, participate as observers. The following countries are signatories:

Australia	Canada	Fiji	Indonesia
Malaysia	New Zealand	Papua New Guinea	Philippines
Singapore	South Korea	Thailand	Tonga
United States			

The PACS Forum encourages members to seek formal sponsorship in the NCS by applying to the AC/135. Many PACS members have already done so. Like NCS, PACS publishes a CD-ROM based product produced by Defense Logistics Information Service (DLIS). This CD-ROM provides military logistics data in support of PASOLS member nations. The PACS Master Cross Reference List includes stock numbers, item names, part numbers, and manufacturers and vendors codes for over 12 million items of NCS origin which are used in the pacific region. For additional information on PASOLS visit the web site <http://www.pasols.org>.

Other Country Interests

In addition to the Partnership-for Peace (PfP) and PACS initiatives, the NCS is increasingly used in South America, with Brazil and Argentina taking the lead. Furthermore, South Africa is using the NCS, and the United Nations is considering use of the NCS and integrating it with its UN Common Coding System.

Catalog Products from North Atlantic Treaty Organization Sources

Another player in the publications area is the NATO Maintenance and Supply Agency (NAMSA). NAMSA is the focal point for the NATO MCRL on CD-ROM (NMCRL). This product contains all of the NSNs, reference numbers, CAGEs/NSCMs, Item Names, and manufacturers' data (name and address) of all the NATO countries, including the U.S. It is a multidisk CD-ROM product. Since it does not contain any restricted data, it is available to all countries. The NMCRL is issued six times each year, with each issue updated to include any changes since the last issue. The NATO MCRL operates in the same hardware/software environment as DLIS's CD-ROM products. The NMCRL is produced and distributed by NATO. For further information and current pricing data, contact NAMSA at: NATO Maintenance and Supply Agency (NAMSA), Codification Division, 11 Rue de la Gare, L-8301 Capellen, Grand Duchy of Luxembourg. NAMSA can be reached at (352) 30 63 6748, via Telefax at: (352) 30 63 4748, via E-mail at nmcrl@namsa.nato.int, or refer to the web page at: <http://www.nato.int/structur/AC/135/welcome.htm>.

Uniform Materiel Movement and Issue Priority System

The Uniform Materiel Movement and Issue Priority System (UMMIPS) helps satisfy the need to identify the relative importance of competing demands for logistics systems resources. It establishes guidance for the ranking of materiel requirements and incremental time standards for requisition processing and materiel movement. This is done through the use of a two-digit code known as a priority designator.

The priority designator is based on a combination of factors that relate to the mission of the requisitioning activity (i.e., the Force/Activity Designator) and the urgency of need.

- Force/Activity Designators (FADs) are represented by Roman numerals I through V. The U.S. Joint Chiefs of Staff (Joint Staff) has assigned FADs to select foreign country forces in their directive CJCSI 4110.01, *Force/Activity Designators for Foreign Country Forces*, 10 October 95. The FAD is applicable to all requisitions for materiel destined for the country. In other instances, a different FAD may be assigned to a specific FMS purchaser military service or to a particular FMS case. The CJCSI permits the Military Departments to assign FAD II or lower to specific FMS cases for less than one year with appropriate coordination.
- The receiving activity's urgency of need for the materiel being requisitioned is indicated by an Urgency of Need Designator (UND) in alphabetic character form, either A, B, or C.
- The requisition originator determines the UND to be assigned, using the criteria set forth in the UMMIPS directives. In broad terms, UND "A" equates to an extremely urgent requirement, UND "B" to a less urgent requirement, and UND "C" to a routine requirement, e.g., stock replenishment.

Table 12-2 is the UMMIPS matrix. The matrix is used to determine the priority number for a given requisition. For example, an FMS purchaser assigned a FAD "V" with a UND "C" would assign a priority "15" to the requisition.

Table 12-2
UMMIPS Matrix

FAD:	I	II	III	IV	V
UND "A"	01	02	03	07	08
UND "B"	04	05	06	09	10
UND "C"	11	12	13	14	15

Logistics Communications

As with all military operations, the success of DoD logistics operations depends to a large extent on the availability of a fast, accurate, and reliable communications system such as the Defense Data Network (DDN). However, since DDN is not available to the majority of FMS purchasers, other methods such as international mail, facsimile transmissions (FAX), e-mail, and the International Logistics Communications System (ILCS) serve many countries as the primary logistics communications method for FMS.

International mail is both slow and unreliable when compared to electronic means of transmitting MILSTRIP documents, cataloging data, and narrative traffic. Although the FAX and E-mail may be faster than international mail, they are still subject to manual processing at the International Logistics

Control Organization (ILCO). This intervention slows down the request and subjects the document to potential transcription errors.

The ILCS significantly increases the amount and timeliness of management information available to purchaser logisticians and significantly reduces pipeline time. Studies have shown that the use of this system can reduce the communications portion of the pipeline by as much as 80 percent, resulting in significant cost savings.

The ILCS was developed to improve logistics communications service to security assistance (SA) countries, freight forwarders, and contractors. The system, used with SA countries since 1979, has also been adopted for use by a large number of U.S. government and commercial organizations.

The service provides a computer-to-computer telecommunications capability that allows a subscriber to exchange logistics related information with the DoD logistics community and with other ILCS subscribers. The ILCS operates at high speeds and is suited to purchasers with high volumes of traffic. Furthermore, the ILCS can be directly integrated into a purchaser's logistics data system and used to transmit narrative messages to offices in DoD. (Reference Figure 12-4)

This system, which has multi-service application, passes MILSTRIP requisitions to a Defense Logistics Agency activity called the Defense Automatic Addressing System Center (DAASC). DAASC automatically routes the documents to the appropriate ILCO for processing. After an ILCO verifies the requisitions validity and funding, they are forwarded to the source of supply directly or via the DAASC. For most requisitions, use of these systems can completely eliminate manual processing between the requisitioner and the source of supply. Additionally, status transactions are returned to the requisitioner through this same system.

ILCS is normally installed based on an implemented Foreign Military Sales (FMS) case after it has been determined that the existing methods of communication are not adequate to serve the subscriber's needs. The information processed in ILCS is contained in individual Narrative and Data Pattern (80 column, punched card image) Logistics Messages.

Subscriber Options

ILCS can be provided to the subscriber through:

- A Defense Automatic Addressing System Center (DAASC) developed turn-key system, consisting of hardware, software, supplies, installation, and training for the system at the subscriber's location. This service is provided based on an FMS case established by the appropriate ILCO.
- An existing in-country personal computer system with the capability, hardware, and software to interface with the DAASC Network Control System computer system. DAASC will provide the interface requirements and the DAMES PC software package to the subscriber.

The DAASC Automated Message Exchange System (DAMES) is a fully automated telecommunications system that provides the subscriber with a stand-alone telecommunications terminal. DAMES can be designed to function as a communications front-end processor that is linked to a subscriber's existing telecommunications network.

The DAMES System connects to DAASC through the commercial telephone or internet network. The telephone line should have a direct-dial access to a public or international switched network and be capable of supporting data exchange at the transmission rate of the system. Communicating via Internet uses TCP/IP running custom File Transfer Protocol developed by DAASC. It requires a WINSOCK.DLL file that should be provided by the user's network server.

If required, a DAMES System can also be connected to a local or remote host system through dial-up or dedicated lines and can support joint service requirements within the subscriber country.

Training on DAMES operations is provided to subscribers during system installation and implementation visits to the subscriber's location, or during DAMES software installation visits for implementation using a subscriber's existing computer system. Training can also be provided at DAASC, using DAASC computer systems, if required.

A further refinement of the ILCS is an optional system known as Supply Tracking and Repairable Return (STARR/PC). This is a personal computer-based system available from the U.S. Air Force, U.S. Army and U.S. Navy. STARR/PC provides the foreign customer much more logistics and financial information than ILCS alone.

System Costs

Typical costs include: a system subscription fee based on a pro rata share of developing and operating the system; system hardware, software, and supplies; U.S. support for system installation; and telephone charges. Hardware and software costs are one-time in nature, while the annual fee, optional technical assistance, and telephone charges are recurring. Telephone costs associated with the connection to DAASC are on a time-used basis.

The cost of a "turn-key" DAMES system for a subscriber cannot be determined exactly until a site survey is performed or a working group meeting is convened; however, first year costs can be as low as \$10,000 depending on the configuration and location.

The investment and recurring costs of ILCS are provided from funds in an FMS case managed by the appropriate service ILCO. FMS countries with an interest in ILCS should notify their country office at the appropriate service ILCO who will interface with DAASC to secure the required ILCS services through an FMS case.

Current foreign customer subscribers are shown in Table 12-3.

Table 12-3
ILCS Subscribing Customers

Argentina	Air Force	Malaysia	Air Force, Navy
Australia	Army, Navy	Mexico	Air Force
Austria	Army	Morocco	Air Force, Army, Navy
Bahrain	Air Force, Army, Navy	Netherlands	Air Force, Army, Navy
Belgium	Air Force, Army, Navy	New Zealand	Air Force, Embassy
Bosnia	Army	Norway	Air Force
Brazil	Air Force, Navy	Oman	Air Force, Army
Canada	Air Force	Pakistan	Air Force
Chile	Air Force	Peru	Air Force
Colombia	Air Force, Navy, National Police	Philippines	Air Force, Navy

Denmark	Air Force, Army, Navy
Ecuador	Air Force
Egypt	Air Force, Army, Navy
El Salvador	Air Force, Joint Staff
Finland	Air Force
France	Air Force
Germany	Armed Forces Command
Greece	Air Force, Army, Navy
Hungary	Air Force
Israel	Air Force, Army, Navy
Japan	Air Force, Army, Navy
Jordan	Air Force, Army
Kenya	Air Force
Korea	Air Force, Army, Navy
Kuwait	Navy
Luxembourg	Army

Amerford, Inc.	Freight Forwarder to Thailand & Indonesia
Boeing Co.	Contractor
Circle International	Freight Forwarder to Bahrain, Japan, Kuwait & Oman
Daniel F. Young, Inc.	Freight Forwarder to Jordan, Philippines &

Poland	Ministry of Defense
Portugal	Air Force, Army, Navy
Saudi Arabia	Air Force, Army, Navy
Singapore	Air Force, Army
Spain	Air Force, Army, Navy
Sweden	Joint Staff
Switzerland	Air Force
Taiwan	Air Force, Army, Navy
Thailand	Air Force, Army, Navy
Tunisia	Air Force
Turkey	Air Force, Army, Navy
United Arab Emirates	Army
United Kingdom	Air Force, Navy
Uruguay	Air Force
Venezuela	Air Force
Yemen	Air Force, Army

MSAS Cargo Int'l.	Freight Forwarder to New Zealand
Panalpina	Freight Forwarder to Morocco, Switzerland & Tunisia
Plexis	Freight Forwarder to Singapore
Raytheon Systems, Inc.	Contractor

	United Arab Emirates		
Ikaros Transport, Inc.	Freight Forwarder to Greece	SAIC	Contractor
Lear Siegler Logistics International	Contractor	Sunjin Shipping, USA	Freight Forwarder to Korea
Marmara	Freight Forwarder to Turkey	Tacisa	Freight Forwarder to Portugal & Spain
Maritime Company for Navigation	Freight Forwarder to Saudi Arabia	World Trade Transport	Freight Forwarder to United Kingdom

Supply Tracking and Repairable Return/PC System

In the past, several customer countries have requested direct terminal access to the U.S. services' computer systems: Air Force's Security Assistance Management Information System (SAMIS), Army's Centralized Information System for International Logistics (CISIL), and Navy's Management Information System for International Logistics (MISIL). This requires extra security measures to protect a customer country's data from unauthorized access, but not all the U.S. systems were able to accommodate the extra security. Another method for giving the customer access to his data was needed, so the Air Force Security Assistance Center (AFSAC) developed the Supply Tracking and Repairable Return/PC System (STARR/PC) that operates in a Windows© environment.

STARR/PC was originally implemented in 1988 by AFSAC. The U.S. Army Security Assistance Command (USASAC) became a supporter, and now the U.S. Naval Supply Systems Command (NAVSUP) is supporting STARR/PC, thereby giving the customer country a single tool for managing the MILSTRIP requisition data it exchanges with the U.S.

The STARR/PC system is designed around a data download from SAMIS, CISIL, or MISIL. Each day as status data is received by SAMIS, CISIL or MISIL, they produce a series of "master records" that duplicate the current status of a country's updated requisitions. These records are then transmitted, via the International Logistics Communication System (ILCS) to the STARR/PC system at the customer's location. This new set of records replaces the last set of master records for the affected requisitions. All processing of the MILSTRIP transactions is accomplished by SAMIS, CISIL and MISIL. STARR/PC merely updates its databases with the same status as found in the DoD systems. This method of overlaying the STARR/PC master records eliminates the need for duplication of system logic between STARR/PC and DoD. It also eliminates the need for continuous updates to the customer's software as MILSTRIP changes occur. In addition to requisition information, SAMIS, CISIL and MISIL periodically transmit the financial status of each of the country's Air Force, Army and Navy managed cases at the case line level.

For participating countries, STARR/PC provides a means for tracking and transmitting freight movement transactions. The primary goal of the STARR/PC system is to improve logistics support to security assistance customers by providing timely status visibility. The data involved is the status of FMS requisitions, the movement of the requested materiel and repairable items through the supply system, materiel return requirements, financial status of the country's Air Force, Army and Navy cases, Supply Discrepancy Reports (SDRs) and Air Force Technical Orders (T.O.) status reports. The country's military service can use STARR/PC as its primary method of input and tracking FMS requisitions. Case financial information is supplied to STARR from all three U.S. Services. Materiel

Repair Requirements List (MRRL) information is supplied for USAF managed FMS cases. For U.S. Navy cases, information at the MILSTRIP requisition suffix (i.e., split supply action) level is provided, as well as information on deliverables for cases managed under contract accounting procedures. For better visibility, a country's freight forwarder can be asked to input certain transactions reflecting the receipt and shipment of materiel to and repairables from the country.

Use of STARR/PC at Foreign Liaison Officers (FLOs), Security Assistance Foreign Representatives (SAFRs), Security Assistance Liaison Officers (SALOs), and Embassies is solely dependent upon the role of the organization. In some cases, either the FLO/SAFR/SALO or the embassy may function as a back-up requisitioning point. Table 12-4 shows the countries currently subscribing to STARR/PC.

Table 12-4
STARR/PC Users

Argentina	Air Force	NATO	Tri-Service
Australia	Navy, Tri-Service	Netherlands	Army, Air Force
Belgium	Army, Air Force, Navy	Norway	Air Force
Bosnia	Army	Oman	Army, Air Force
Brazil	Air Force	Peru	Air Force
Chile	Air Force	Philippines	Air Force
Colombia	Army, Air Force, Navy	Poland	Tri-Service
Ecuador	Air Force	Portugal	Army, Air Force
Egypt	Air Force	Luxembourg	Army
El Salvador	Air Force, Tri-Service	Saudi Arabia	Army, Air Force, NG
Finland	Air Force	Singapore	Air Force
France	Air Force, Navy, Embassy	Spain	Army, Air Force
Greece	Tri-Service	Switzerland	Tri-Service
Israel	Army, Air Force, Navy	Sweden	Tri-Service
Hungary	Air Force	Taiwan	Army, Air Force
Jordan	Air Force, Army	Thailand	Army, Navy
Korea	Air Force, Army, Navy	Tunisia	Air Force, Army, Navy

Kuwait	Army	Turkey	Army, Navy
Luxembourg	Army	United Arab Emirates	Army
Malaysia	Air Force, Navy	United Kingdom	Air Force
Mexico	Air Force	Uruguay	Air Force
Morocco	Army, Air Force	Venezuela	Air Force
NAMSA	Tri-Service	Yemen	Air Force

System Components

The system is made of up three components: computer hardware, computer software and communications. The computer hardware and software are defined at the time of request, based on the customer's requirements. Normally, only a modern stand-alone PC is required for the system. For communications, the STARR user must use the DAASC International Logistics Communication System. This package provides data transfer between the DoD and the customer. STARR/PC provides five basic functions to its users: requisition tracking, financial management, Supply Discrepancy Report (SDR) tracking, Contract Accounting and, for Air Force customers only, Materiel Repair Requirements Lists (MRRLs).

Security Cooperation Information Portal

The Security Cooperation Information Portal (SCIP), which came on-line in September 2003, is another medium available to the international purchaser for submitting and tracking requisitions, and monitoring case status. The SCIP gives the user access to data from the ILCO logistics databases (MISIL, CISIL and SAMIS), to data from the Defense Integrated Financial System (DIFS), and case management information from the Defense Security Assistance Management System (DSAMS). The SCIP is expected to be a very useful logistics management tool upon full implementation. For further information on the SCIP, see Chapter 9 of this text, *Security Assistance Automation*.

Life Cycle Logistics Support Planning Process

The Department of Defense logistics system is designed to provide support throughout the life cycle of a weapon system to ensure maximum mission capability. The goal is to provide the greatest support for the least cost. Decisions regarding which repair parts to stock in order to maintain the highest operational readiness possible start with the initial planning phases of a new weapon system and continue during its entire operational life. For the purposes of foreign military sales (FMS), the life cycle management of a weapon system can be divided into two phases: initial and follow-on support.

When an international customer decides to acquire a sophisticated weapon system through the FMS program, the logistics support planning process begins when the international customer submits a comprehensive Letter of Request, which, in addition to identifying the desired weapon system configuration, identifies the country's operational requirements, and existing logistics support capabilities. The planning process typically continues with the Implementing Agency conducting a Site Survey in the FMS customer's country.

Site Survey

Site surveys are associated with weapon system sales. They are the foundation of logistics support provided to the FMS customer. Site surveys are typically held in the purchaser's country with

representatives from the Implementing Agency, representatives of the manufacturer, and the FMS customer. The structure of the site survey team may be a few people for several days for small, relatively simple weapon systems, to a large contingent of technical experts and logistics managers meeting with the customer in-country for several weeks.

The purpose of the site survey is to tailor the maintenance and supply support strategy for the weapon system to the unique requirements of the FMS customer. During the site survey, the customer should become acquainted with the Implementing Agency acquisition and delivery process, the Implementing Agency (IA) maintenance support plan, and the initial spare parts and support equipment allowances. The site survey team will confirm the FMS customer's operational and support plan, verify the customer's in-country logistics resources and requirements, prepare a milestone chart for the delivery of materiel and services, and prepare a proposal for follow-on logistics support.

Planning for Initial Support

Initial support is the range and quantity of items such as tools, spares, and repair parts provided in a defined order case during an initial period of service. These items are provided to support and maintain the major item purchased in the defined order case. Initial support is provided to the purchaser before or at the same time the system or major item is delivered. This ensures the successful introduction and operation of the new system into the customer's inventory. Sufficient quantities of repair parts must be on hand until follow-on support is available.

The level of initial support can vary from weapon system to weapon system; but in general, initial support is provided for a 12 to 24 month period. In order to determine the level required for security assistance customers, information is needed by the U.S. implementing military department, such as the average operations per hour per month, number of repair locations, maintenance concept, etc. A driving force in determining the amount of initial support to be provided for a particular weapon system is often the amount of money that the country is willing to invest.

After returning from the site survey the logistics program manager reviews the repairable and maintenance allowance recommendations. Part numbers, stock numbers, quantities and supply sources are validated for subsequent ordering. The amount of support is normally based on a mutually agreed upon rate of operation for the system. Determining the type and duration of initial support is normally accomplished with a provisioning conference.

Provisioning

Provisioning is the process of determining the type of repair parts to stock (or "range") and quantity of each stocked item to have on hand (or "depth") to support and maintain a system through its initial period of service (Joint Pub 1-02). We must not forget that a weapon system must be maintained in operating condition throughout its lifetime to be valuable. It is not enough to think only of the plane, ship, or tank, but all those things that will be necessary to use and maintain that weapon system. Provisioning is used to determine all the necessary repair parts, test equipment, and other accessories such as special tools and ground support equipment. It is an extensive and expensive process that the DoD does for each new weapon system it employs.

The provisioning conference is a working group consisting of contractor, engineering, maintenance, supply, and user personnel. This conference is held early enough in a weapon system acquisition program to permit an orderly production of the required items. Through the use of the maintenance concept, technical drawings, parts lists, estimated prices, recommended quantities, and agreed upon replacement factors, a decision is made regarding which items will be stocked in the DoD supply system and which will be procured only on demand. It is also during the provisioning conference that the necessary information is collected to begin cataloging new items for the DoD logistics system.

In provisioning, several decisions must be made to determine which items of support are required. Normally, these decisions are made not only for the system as a whole but also on a component-by-component basis. The following concepts must be considered when selecting the optimum equipment support.

Reliability

Clearly, for a weapon system to be valuable, it must be combat-ready as much of the time as possible. As a measure of reliability, the failure rate of each constituent part is examined. A measure commonly used is the Mean Time between Failure (MTBF). In simple terms, the providing Implementing Agency is concerned about how often an item breaks down and requires replacement or repair. This information influences the type and quantity of items placed on the initial provisioning list.

Maintainability

When an item fails, a determination must be made whether it can be restored to an operable condition according to predetermined specifications in the time allocated for its repair. Maintainability measures the ease of completing maintenance tasks. It is measured as the Mean Time to Repair or Restore (MTTR).

In practice, the longer a repairable item is out of circulation for maintenance, the greater the quantity needed on the supply shelf. This, in turn, impacts the inventory investment that the purchasing country must consider.

The capability to perform maintenance on a component presumes that the foreign nation has adequate resources, i.e., facilities, test equipment, skilled personnel, manuals, repair parts, and tools to do the job. If any one of the resources is deficient or missing, repairs to be done in country may prove impossible, thus rendering the weapon system incapable of performing its mission. On the other hand, the cost of the component, when compared to the maintenance labor costs to repair it and the cost to hold an inventory of parts, may dictate that if the component fails, it should be thrown away and replaced. Many small components such as valves, motors, and pumps are discarded rather than repaired since repair costs exceed item value.

A key factor in the final decision regarding how many parts to buy is the in-country repair capability. If such a capability exists, the quantity purchased will be lower; if not, and the items must be shipped to distant repair facilities, then a greater number of items will be required to compensate for the number of days the items are in the pipeline. This is a decisive point because it helps determine the amount of investment needed for spares and repair parts. The selection of parts must be aimed at reducing downtime to ensure the weapon system can perform its designated mission in the most cost-effective manner.

Economy

In making support decisions, economy can be an overriding factor. The providing Implementing Agency must consider not just the cost of the material, but also labor costs for making the repairs and the cost of not having the weapon system available while repairs are being made. The lowest cost of parts may not necessarily be the most economical cost. Standardization and interchangeability also enter into the economics equation. Selecting parts common to systems currently being used may avoid inventory costs and support difficulties.

Level of Repair

Once it is determined that an item of equipment or component can be repaired, the recipient country must determine at which level in its overall maintenance organization the repair will be made. Three different levels of repair are usually considered: organizational repair that is done by the using organization, i.e., company, squadron, or shipboard levels; intermediate repair, usually at an echelon above and supporting the organizational level, but still operating in the field, such as base, battalion,

station or division levels, and depot level maintenance, usually performed in a Implementing Agency depot or a contractor’s plant. The decision to repair at the organizational, intermediate, or depot level is made after considering the technical skills of the personnel at each level, the investment in special tools, test equipment, facilities or handling devices which may be required, and any problems in physical access to the equipment which may be encountered.

Military Essentiality

Since having unlimited funds to secure support items is not usually the case, it is necessary to allocate available resources on the basis of military essentiality. Military essentiality is the relative value of each part to the equipment and the equipment to the system as a whole. Parts become more essential when their individual performance directly affect the entire system. Obviously, the failure of some part or equipment will prevent a weapon system from performing its total mission. While failure in back-up or auxiliary equipment may not be so catastrophic, funds will usually be applied to those items whose failure will have the most significant impact on the ability of the equipment to accomplish its designated mission.

Source, Maintenance and Recoverability Code

One of the technical decisions made during the provisioning conference is the designation of Source, Maintenance and Recoverability (SM&R) codes for repairable items and parts. These SM&R codes communicate maintenance and supply instructions to the product users and the various logistic support levels. The SM&R codes are published in technical and maintenance manuals, illustrated parts manuals, allowance lists, and supply catalogs. The codes are assigned to each item based on the logistic support planned for the end-item and its components. SM&R codes are used to identify the source of spares, repair parts, support equipment and end items, and the level of maintenance authorized to use, maintain, overhaul, rework or condemn them. SM&R codes are the basis for discussion between the FMS customer and the Implementing Agency during the site survey and the definitization process. The standard SM&R format is shown in Table 12-5.

Table 12-5
Source, Maintenance & Recoverability (SM&R) Code

SOURCE				MAINTENANCE				RECOVERABILITY			
				USE		REPAIR					
1 ST POSITION		2 ND POSITION		3 RD POSITION		4 TH POSITION		5 TH POSITION		6 TH POSITION	
P	PROCURABLE	A	STOCKED	O	REPLACE AT	O	ORGANIZATION	O	CONDEMN AT	R	
		B	INSURANCE		ORGANIZATION		INTERMEDIATE				
		C	CURE DATED		LEVEL		LEVEL REPAIRABLE				
		D	ONE TIME	F	INTERMEDIATE	F	CONDEMN AT				
		E	SUPPORT EQUIPMENT: STOCKED		REPLACE AT		INTERMEDIATE				
		F	SUPPORT EQUIPMENT: NON-STOCKED								
		R	OBSOLETE,								

			REPLACED								
		Z	OBSOLETE, NOT REPLACED								
K	COMPONENT OF A REPAIR KIT	G	LIFE OF TYPE	F	INTERMEDIATE LEVEL	H	INTERMEDIATE		LEVEL REPAIRABLE	E	
		F	INTERMEDIATE								
		D	DEPOT		REPLACE AT	G	INTERMEDIATE	H	CONDEMN AT INTERMEDIATE LEVEL REPAIRABLE	S	
		B	BOTH								
M	MANUFACTURE	O	ORGANIZATION	H	INTERMEDIATE LEVEL	D	LIMITED: INTERMEDIATE	D	CONDEMN AT DEPOT LEVEL	R	
		F	INTERMEDIATE								
		H	INTERMEDIATE		REPLACE AT		OVERHAUL: DEPOT				
		G	INTERMEDIATE					L	CONDEMN AT DEPOT LEVEL	V	
		D	DEPOT								
A	ASSEMBLE	O	ORGANIZATION	G	INTERMEDIATE LEVEL						
		F	INTERMEDIATE			L	DEPOT ONLY		NONREPAIRABLE	E	
		H	INTERMEDIATE		REPLACE			Z	CONDEMN AT LEVEL NOTED IN COL 3	D	
		G	INTERMEDIATE			Z	NO REPAIR				
		D	DEPOT								
X	NONSTOCKED	A	REQUISITION NEXT HIGHER ASSEMBLY	D	AT DEPOT LEVEL	B	NO REPAIR: RECONDITION				
		B	AVAILABLE THROUGH SALVAGE					A	SPECIAL HANDLING		
		C	DRAWINGS. IDENTIFY CAGE/PART NUMBER BY								

The source code consists of the first two positions of the SM&R code. It indicates how the item is to be obtained by users. Known or predicted usage is the primary factor in the assignment of source codes. Specifically, this code indicates whether the part will be:

- Procured and carried in the supply system,
- Procured on demand and not carried in the supply system,
- Manufactured,
- Assembled using component parts, or
- Not replaced because installation of the next higher assembly is more practical.

The maintenance codes are the third and fourth position of the SM&R code. The first position indicates the lowest maintenance level authorized to remove and replace the item. The second position indicates the lowest maintenance level authorized to return the item to serviceable condition.

The recoverability code is the fifth and sixth position of the SM&R code. The fifth position indicates the lowest maintenance level authorized to throw away an unserviceable item that is not economically repaired. The sixth position is reserved for service-unique comments or notes.

Definitization

Definitization is the process by which the provisioning requirements for Implementing Agency needs are adjusted to accommodate those of the foreign purchaser. The definitization process is essentially the same for FMS as is the provisioning process for new systems procured for U.S. forces. However, since most systems sold through FMS have already been provisioned for U.S. use, the U.S. operation, maintenance, and consumption data is the foundation on which adjustments are made for the FMS customer's projected requirements. During the operation of a weapon system, the database created during provisioning is updated continuously to reflect actual usage and to modify the theoretical decisions which were originally assumed. This updated database becomes the basis for determining what support will be sold to a foreign customer. During the definitization process spares and support equipment requirements not already confirmed during the site survey are identified.

Concurrent spare parts (CSP) accompany each system sale to provide the basic in-country supply system. FMS customers CSP lists are tailored from DoD provisioning data. The data is modified to reflect actual consumption of parts during operation, and customer's input addressing at a minimum equipment operations, condition (i.e., hours, climate) and budget restraints. Alternatives for reducing the FMS customer's initial spares investment are discussed with the major system and subsystem vendors. Depending upon the weapon system being sold, the CSP list may be a simple extract from U.S. files, or it may represent a major modification to U.S. requirements.

The weapon system configuration being sold may differ from the standard U.S. model. In some cases, there are components which cannot be sold to other nations for security reasons or to protect vital technologies. In such instances, these must be replaced, most likely with components not used by U.S. forces. In other cases, a country's special needs or operational considerations require that some modification be made to the standard configuration. In either instance, the configuration changes must be identified in the definitization process, and the logistics support must be modified accordingly.

The definitization process includes planning for follow-on support. FMS customers and program managers should discuss future options for:

- Spare parts support through CLSSA or blanket order cases;
- Repair options;
- Follow-on training and training devices;
- Technical and engineering services;
- Updates of technical manuals and publications;
- Munitions and explosives; and
- Transportation options for the movement of materiel.

The support infrastructure of the customer often has a bearing on the support package. The number of operating bases and supply depots and their locations may require changes to U.S. recommendations. Especially important in this area is the location and use of repair facilities. Today, more sophisticated equipment is being provided under our security assistance programs. It is often the case with such equipment that many components are more economically repaired than purchased new. However, many purchasing countries do not have the capability to repair the items and must return them to the U.S. repair facilities. In such an instance, the in-country stocks of repairable items may have to be higher to accommodate this longer loop in the repair cycle while

items are being returned to the U.S. The alternatives for reducing initial and life cycle support costs through increased self-sufficiency and a shorter supply and maintenance pipeline should be presented as options to the FMS customer.

The overall objective of definitization is to provide optimum logistics support, at a reasonable cost, using the best possible calculations of projected needs. For the FMS customer, it is often insufficient to apply the same decisions as we have made for ourselves. The additional step of definitization is necessary to ensure adequate support for the system which is being purchased.

Follow-on Support

Follow-on support is the support provided on a day-to-day basis subsequent to the initial support period and prior to removal of the end item from inventory. Follow-on support negotiations are generally started during the weapon system acquisition phase to accommodate administrative and production lead times. Further information on follow-on support is contained in Chapter 13.

Summary

The discussion continues about the definition of logistics-what its constituent parts may be or how to define the term for universal acceptability. Regardless of the discussion's outcome, logistics remains a force to be seriously considered in any activity involving timing, movement, forethought, and sensitivity to the successful support of mission objectives. This is especially so in the support of FMS.

Traditionally, logistics employs four processes to complete four tasks. The processes are requirements determination, acquisition, distribution and conservation; the tasks are procurement, transportation, supply, and maintenance. Since there is no separate, dedicated logistics system for FMS, the processes and tasks required for its support are furnished through the existing DoD logistics infrastructure. The same wholesale (ICP or depot level) acquisition, supply, transportation and maintenance systems utilized for the support of U.S. forces are also utilized for the support of FMS.

Foreign customers often use U.S. procurement offices, to the extent possible and permissible, for systems acquisition, contract administration, and quality control in order to take advantage of the high U.S. standards. By doing so, the foreign country avoids establishing its own separate offices to perform the same functions. It is U.S. government policy that the FMS purchaser is responsible for as much of the transportation process as possible, and that the DoD only becomes involved on an exceptional basis. Depot level maintenance on U.S. supplied materiel can be accomplished by organic military facilities or by civilian contractors.

Many foreign countries participate in the NATO Codification System (NCS), which standardizes materiel descriptions and cataloging data for interchangeable use.

The primary interface between the foreign country and the U.S. logistics system are the International Logistics Control Organizations (ILCOs), i.e., U.S. Army Security Assistance Command (USASAC); U.S. Navy Inventory Control Point (NAVICP-OF); and the Air Force Security Assistance Center (AFSAC). These organizations have employees who resolve foreign military sales purchaser's logistics problems.

Foreign customers must become familiar with the Military Standard Requisition and Issue Procedures (MILSTRIP) in order to requisition materiel from the DoD and interpret the subsequent status documents. Customers communicate with the DoD logistics system through the International Logistics Communication System (ILCS), which connects the customer to the ILCO via computer using software packages such as STARR/PC or DAMES.

It is DoD policy to support FMS systems and equipment. In this regard, both initial support and follow-on support have to be considered as part of the Total Package Approach (TPA). TPA ensures that FMS customers plan for and obtain all necessary support items, training, and services required to introduce and operate major systems and equipment. In addition, both initial and follow on support must be considered at the time a major system is sold. The customer's unique requirements are often determined through a site survey. Instrumental to determining the range and depth of required spares is the concept of provisioning. Provisioning entails numerous considerations such as reliability, maintainability, economy, level of repair, and military essentiality. The benefits of provisioning are passed on to the FMS customer through definitization of the customer's total package.

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